



---

## Dr. Landrigan's Summer Suggestions

School's out for summer! The warm months of summer are upon us and your kids are now spending more time playing outside. Dr. Landrigan recommends several tips on how they can have fun and stay safe. In short:

- **Choose organic or local fruits and veggies when you can!**
- **Let the dandelions grow—avoid pesticides on your lawn.**
- **Don't forget the "broad spectrum" sunscreen and a hat—a little sun can go a long way**
- **Eat fish, choose wisely.**
- **Look for PVC-free beach and pool toys.**

As always, it is essential that your kids learn to keep their hands clean (with soap and warm water) in order to protect their health and reduce environmental exposures.

---

## Pesticides and Your Family

Although pesticides are developed to specifically prevent or destroy pests including weeds, insects, bacteria and rodents, most are also toxic to species beyond those originally targeted. When humans are exposed to pesticides, unintended health effects can occur, ranging from damage to the brain, immune and endocrine system disruptions, injury to reproductive organs, birth defects and cancer.<sup>1</sup> Recent studies have also suggested a link between parental exposure to pesticides and brain cancer in children.<sup>2</sup>

Growing awareness of the health effects associated with pesticides has led to reductions in their use. Still, large quantities of these chemicals still enter the environment every day. In the five boroughs of New York City alone, 270,337 gallons of pesticide were applied in 2005. Westchester and Suffolk counties applied 578,551 and 255,723 gallons, respectively.<sup>3</sup>

While there is no way to completely eliminate exposure to the pesticides used in the world around us, there are several simple ways to reduce your family's exposure to these potentially harmful chemicals.

---

<sup>1</sup> Landrigan PJ, Luz C. Pesticides. In: Lippman M, ed. *Environmental Toxicants, Third Edition*. John Wiley and Sons, Inc.; 2009; Chapter 24

<sup>2</sup> Shim YK, Mlynarek SP, van Wijngaarden E. Parental Exposure to Polychlorinated Biphenyls and Organochlorine Pesticides and Risk of Childhood Leukemia *Environ Health Perspect*. 2009;117(6):1002-1006.

<sup>3</sup> New York State Department of Environmental Conservation. Final 2005 PRL Annual Report – Figure 2 Text. New York State Department of Environmental Conservation. <http://www.dec.ny.gov/chemical/37851.html>. Accessed June 22, 2009.

**Fruit and Vegetables** – Fruits and vegetables are excellent sources of nutrients and a wonderful summer snack for children; however, they can also contain large levels of pesticides. Here are some suggestions on ways to cut back on the pesticides your family is exposed to through produce:

- Thanks to an increase in demand in recent years, most stores and markets now offer **USDA Certified Organic** produce. Buying organic is your best bet to assure that your produce is chemical-free.
- **Local** produce should be favored – If organic produce is unavailable or exorbitantly priced, there are still ways to reduce the amount of chemicals in the food you purchase. Food that must be transported large distances is often picked unripe, chemically ripened and loaded with preservatives for trip to its final destination.
- Buy produce known to contain **fewer pesticides** –not all produce is created equal. According to the Environmental Working Group, produce known to contain the highest pesticide risk per serving are (from high to low): peaches, apples, sweet bell peppers, celery, nectarines, strawberries, cherries, kale, lettuce, grapes (imported), carrots and pears. If there are no organic options for the produce with the highest pesticide levels, then choose from the list of cleaner alternatives. Those that are cleanest (lowest in pesticide risk per serving), include: onions, avocados, sweet corn (frozen), pineapples, mangos, asparagus, sweet peas (frozen), kiwi, cabbage, eggplant, papaya, watermelon, broccoli, tomatoes and sweet potatoes.<sup>4</sup>
- **Wash all produce under running water** – Running water has an abrasive effect that soaking does not have and will remove most surface waxes and pesticide residues, along with dirt and bacteria. Peeling fruits and vegetables also removes surface residues. (Remember that some nutrients may be lost in peeling.)



**Lawn Care** – Lawns can be a major source of pesticide exposure. Preventing children from playing on lawns where pesticides have been applied will greatly reduce their exposure to these potentially dangerous chemicals.

- Look for **signs** – Multiple states, including New York and Connecticut, have enacted policies requiring the posting of signs indicating that pesticides have been used.<sup>5</sup> Keeping children out of areas where pesticides have been freshly applied will limit their exposure to the hazardous chemicals.
- Alter your **own lawn care** – There are ways to achieve a healthy, green lawn without the use of pesticides. Some effective methods of healthy lawn care include setting your lawn mower blade to its



<sup>4</sup> Environmental Working Group. *Shopper's Guide to Pesticides*. Environmental Working Group. <http://www.foodnews.org/fulllist.php>. Accessed June 25, 2009.

<sup>5</sup> Beyond Pesticides. *Tools for Change*. Beyond Pesticides. <http://www.beyondpesticides.org/lawn/activist/index.htm>. Accessed June 25th, 2009

highest setting, leaving the grass clippings on your lawn, and planting grass known to grow natively in your area.<sup>6</sup>

### ***Removing Pests from Your Home***

While pesticides represent a threat to your family, some unwanted pests can also pose threats by carrying diseases into your home. **Integrated pest management** (IPM) provides an effective, safe alternative to the use of insecticides, preventing the use of dangerous chemicals where your family lives. IPM relies on the use of nonchemical approaches to pest control including blocking pests' access to homes by sealing cracks and crevices, by removing their basic survival needs including air, moisture and food, and by using the safest traps and gels discreetly, in locations not easily accessible to children.<sup>7</sup>

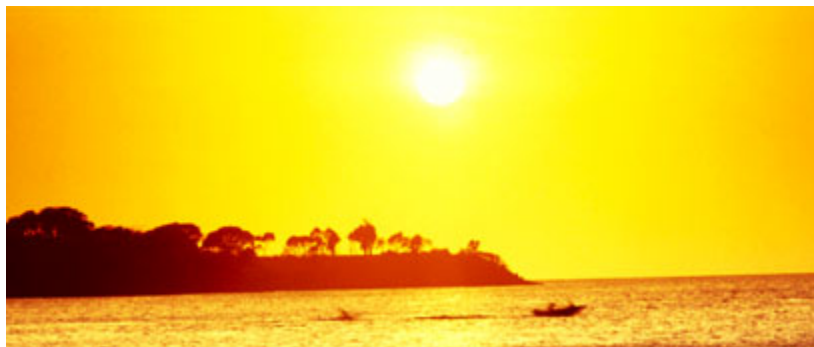
### ***A Quick Word on Ticks***

Ticks are known to carry Lyme disease, which can be transmitted to humans who are bitten by these pests. The best way to protect your children from ticks is to have them wear long pants when outside and to do nightly checks before they go to bed. Ticks are very small, about the size of the period at the end of this sentence, so be sure to check your children carefully. If a child is playing outside frequently, it is a good idea to use an insect repellent containing DEET on exposed skin. While DEET is not risk free, the risks from using child-strength DEET products as instructed by the manufacturer are much less severe than those of Lyme disease.

One closing note: it makes no sense to heavily spray your lawn with pesticides. The combination of long pants, daily checks and the judicious use of DEET are the best approach to keeping Lyme-carrying ticks at bay.

## **Protecting Children from Sun Exposure**

Solar radiation is hazardous for children. Rates of skin cancer in the United States have been rising steadily over the past three decades, and are closely associated with exposure to ultraviolet (UV) radiation, one source of which is the sun. Blistering sunburns in childhood and adolescence are especially



dangerous and are strongly associated with increased risk of skin cancer. Blond or red-haired and blue-eyed children, who often have lighter complexions, are at a higher risk for solar injury, because their skin contains smaller quantities of the protective pigment, melanin, than children with darker complexions.

The two most effective ways to protect children from excessive solar radiation (1) sunscreen or sunblock and (2) sun-protective clothing.

<sup>6</sup> Landrigan PJ, Needleman HL, Landrigan M. *Raising Healthy Children in a Toxic World*. Rodale Press; 2002.

<sup>7</sup> Brenner, BL, et al. 2003. Integrated Pest Management in an Urban Community: A Successful Partnership for Prevention. *Environ Health Perspect*. 2003;111(13):1649-1653.

## **Sunscreens and Sunblocks**

When selecting sunscreens to use on your child, be sure to choose one that is SPF 15 or higher, is labeled “broad spectrum” and contains titanium dioxide, zinc oxide, avobenzone and mexoryl to ensure UVA and UVB protection. Sunscreen should be applied 30 minutes before going outdoors and should be re-applied every two hours, especially if your child is playing in the water. Be sure to use sun protection even on cloudy days; the sun’s rays can penetrate cloud cover.

### ***What is SPF?***

Sunscreens are rated by their SPF – Sun Protective Factor. SPF measures the amount of time it takes for sun-exposed skin to redden. If you normally burn in 10 minutes, a sunscreen with SPF 15 would protect you 15 times as long, or 150 minutes, assuming you don’t sweat or get wet. But that equation changes at SPFs above 30. A sunscreen with SPF 50 blocks only about 1.3 percent more UVB rays than SPF 30, according to the Environmental Working Group. Using SPF 15 should be sufficient, as long as you are sure to reapply within the proper amount of time.

## **Sun Protective Clothing**

While sunscreen should be applied to all exposed skin, certain items of clothing can provide just as high quality protection from the sun. When choosing items of clothing for sun protection, look for hats with wide brims all the way around; these are very effective in protecting the ears, nose and back of the neck. Look for tightly woven and dark fabrics over items that are pale or pastel-colored. The highest protection from the sun is afforded from fabrics containing the highest UPF ratings.

### ***What is UPF?***

Items of clothing are rated according to their UPF - Ultraviolet Protection Factor. The UPF rating indicates how much of the sun’s UV radiation is absorbed. A fabric with a rating of 50 will allow only 1/50th (2%) of the sun’s UV rays (both UVA and UVB) to pass through, blocking the remaining 98%. To be deemed sun-protective, clothing must have a UPF of more than 30 and undergo 40 simulated launderings, be exposed to the equivalent of 2 years of light and be tested with chlorinated water if it is intended for swimsuits.

Even if a piece of clothing has a good UPF, what you do while wearing it can make a difference. If the fabric gets stretched, it will lose some of its protective ability, because the fabric becomes thinner and more transparent to light. And once it gets wet, sun-protective clothing can lose up to 50 percent of its UPF. According to the Skin Cancer Foundation, a dry long-sleeved, white cotton T-shirt’s UPF is 7, but after it gets wet, it provides a UPF of only 3. At the opposite end of the spectrum, a long-sleeved dark denim shirt has a UPF of 1,700, which amounts to a complete sun block.

## ***Sunscreen and Bug Repellent***

One final note on sunscreen; it is strongly recommended that you don’t use a product which combines a sunscreen with an insect repellent containing the compound DEET. DEET is a very effective chemical used in many insect repellents, it does not need to be reapplied as often as sunscreen should, and if too much is applied it can have adverse health effects.

Therefore, if using sunscreen and insect repellent in conjunction, use two separate products, applying the sunscreen first followed by the repellent.<sup>8</sup>

### **Eat Fish, Avoiding those High in Mercury**

For many people, summer is a time to fire up the grill and enjoy some outdoor cooking. While fish is an excellent source of protein and nutrients, too many servings of certain types of fish can lead to ingestion of dangerous amounts of mercury.

When elemental mercury is released into the environment either naturally or through industrial processes, becomes aerosolized and can spread long distances before eventually being deposited into soil or water. Once in rivers, lakes and the ocean, microorganisms transform this elemental mercury into methylmercury, which in turn ends up in organisms that live in these bodies of water. While small fish and shellfish contain lower levels of methylmercury, large predatory fish such as tuna, swordfish, king mackerel and shark contain high levels of methylmercury. Methylmercury is known to have neurotoxicity, particularly in developing organisms (such as children).



### **Avoiding Methylmercury**

While several servings of fish a week can be part of a healthy diet, it is important to ensure that your family is not exposed to too much methylmercury. The best way to avoid exposure is to choose fish known to be low in methylmercury. When possible, look to the lists below provided by the New York City Department of Health and Mental Hygiene to find ways to continue enjoying your seafood cravings while also avoiding high levels of mercury.<sup>9</sup>

***Fish/Shellfish Very Low in Mercury*** – Anchovies, Clams, Crawfish, Herring, Oysters, Shrimp, Salmon and Sardines

***Fish/Shellfish Low in Mercury*** – Cod, Crab, Flounder, Mackerel, Mussels, Scallops, Sole, Trout and Tuna (canned)

***Fish/Shellfish High in Mercury*** – Bass, Bluefish, Halibut, Lobster, Skate, Snapper, Tuna (albacore)

***Fish/Shellfish Very High in Mercury*** – Chilean Sea Bass, Grouper, Mackerel, Marlin, Shark, Swordfish, Tuna (fresh)

Don't let this scare you away from fish completely as fish is a very health source of protein. Simply be aware that when it comes to mercury, not all fish are created equal; choose accordingly.

---

<sup>8</sup> Center for Disease Control. Insect Repellent Use and Safety. Center for Disease Control. [http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect\\_repellent.htm](http://www.cdc.gov/ncidod/dvbid/westnile/qa/insect_repellent.htm). Published May 14, 2008. Accessed June 22<sup>nd</sup>, 2009.

<sup>9</sup> The New York City Department of Health and Mental Hygiene. *Eat Fish, Choose Wisely – A Guide for Pregnant and Breastfeeding Women and Young Children*. The New York City Department of Health and Mental Hygiene. [http://www.nyc.gov/html/doh/downloads/pdf/edp/mercury\\_brochure.pdf](http://www.nyc.gov/html/doh/downloads/pdf/edp/mercury_brochure.pdf).

## **Avoid Pool and Beach Toys Made of PVC**

Many of us have memories of playing at the beach or splashing in a pool, building sand castles and floating in the water. When passing these activities on to the next generation, it is important to learn about possible toxins in their toys. Some plastic toys may be made of polyvinyl chloride (PVC), which can contain lead or phthalates. When young children play with these toys, especially during the teething phase of life, they may put them in their mouths, allowing for the possibility that the lead or phthalates added to the plastic products may leach into their mouths and get into your children's systems.

### **Lead**

While lead is usually only added to plastics in small amounts, no lead level is safe for children. Exposure to even low levels of lead has been associated with behavioral problems and decreased intelligence in children. Once higher levels of lead exposure are achieved, children may exhibit gastrointestinal related symptoms, and severe lead poisoning may be associated with neurological symptoms.

### **Phthalates**

Phthalates are additives often found in plastic products to give them more flexibility. In animal studies, phthalates have been shown to cause disruptions in hormonal function and to cause problems with male reproductive organs. In children, scientists have found associations between phthalates and changes in reproductive hormones, increased allergies, runny noses and eczema.

### ***How to Avoid Products Containing PVC-Additives***

The safest way to avoid phthalates and lead found in PVC containing plastic products is to avoid products that use these plastics. If the recycling code on these plastic products is #3, that indicates the presence of PVC or vinyl and should be avoided. A general rule to follow when purchasing plastic products is to remember the following rhyme with reference to recycling codes: 4, 5, 1 and 2, all the rest are aren't good for you. If you are unsure of a plastic item's content, call its manufacturer and ask if it contains lead or phthalate additives.

